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# EDIBLE SOYBEAN OIL

# AND

# RELATED STUDIES

A List of Publications and Patents, 1962-1969
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This list of publications and patents represents 8 years of research work. It supersedes previous list issued as ARS 71-25, Suppl. 1-7. References are arranged chronologically except when they form a series of papers under the same general title or when the subject matter is closely related. All authors cited are members of the Northern Utilization Research and Development Division, Peoria, Ill.; exceptions are noted in footnotes or affiliation listed after author(s)' name.

Other lists of publications are available: Compositional Studies on Oilseeds, Oils, and Meals, ARS 71-39; Engineering Studies on Processing of Oils and Meals, ARS 71-40; Edible Soybean Protein and Related Studies, ARS 71-42; Chemically Modified Oil Products for Industrial Uses, ARS 71-43; Reviews and General Articles on Oilseed Crops Research, ARS 71-44; Miscellaneous Studies Related to Soybean and Other Oilseed Crops, ARS 71-45.

Northern Utilization Research and Development Division
Agricultural Research Service
United States Department of Agriculture
1815 North University Street
Peoria, Ill. 61604

# EDIBLE SOYBEAN OIL AND RELATED STUDIES

## 1962-1969

## Publications

[Publications marked (*) are not available for distribution. When requesting specific reprints, please order by number. Use your zip code.]

### Hydrogenation

### Heterogeneous Catalysis

1345 HYDROGENATION OF LINOLENATE. IV. KINETICS OF CATALYTIC AND HOMOGENEOUS CHEMICAL REDUCTION
C. R. Scholfield, Janina Nowakowska, and H. J. Dutton
J. Amer. Oil Chem. Soc. 39(2): 90-95. February 1962

1346 HYDROGENATION OF LINOLENATE. V. PROCEDURE OF EVALUATING HYDROGENATION CATALYSTS FOR SELECTIVITY
H. J. Dutton
J. Amer. Oil Chem. Soc. 39(2): 95-97. February 1962

1398 HYDROGENATION OF LINOLENATE. VI. SURVEY OF COMMERCIAL CATALYSTS
A. E. Johnston, D. Macmillan, H. J. Dutton, and J. C. Cowan
J. Amer. Oil Chem. Soc. 39(6): 273-276. June 1962

1515 HYDROGENATION OF LINOLENATE. VII. SEPARATION AND IDENTIFICATION OF ISOMERIC DIENES AND MONOENES
B. Sreenivasan, Janina Nowakowska, E. P. Jones, E. Selke, C. R. Scholfield, and H. J. Dutton
J. Amer. Oil Chem. Soc. 40(2): 45-51. February 1963

1551 HYDROGENATION OF LINOLENATE. VIII. EFFECTS OF CATALYST CONCENTRATION AND OF TEMPERATURE ON RATE, SELECTIVITY, AND *TRANS* FORMATION
A. E. Johnston, Helen M. Ven Horst, J. C. Cowan, and H. J. Dutton
J. Amer. Oil Chem. Soc. 40(7): 285-286. July 1963

1505 HYDROGENATION OF LINOLENATE. [IX.] FRACTIONATION OF ISOMERIC ESTERS BY COUNTERCURRENT DISTRIBUTION WITH AN ARGENTATION SYSTEM
C. R. Scholfield, E. P. Jones, R. O. Butterfield, and H. J. Dutton
Anal. Chem. 35(3): 386-389. March 1963

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C. R. Scholfield, R. O. Butterfield, V. L. Davison, and E. P. Jones
J. Amer. Oil Chem. Soc. 41(9): 615-619. September 1964

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A. E. Johnston, C. A. Glass, and H. J. Dutton
J. Amer. Oil Chem. Soc. 41(12): 788-790. December 1964

1933 HYDROGENATION OF LINOLENATE. XII. EFFECT OF SOLVENTS ON SELECTIVITY
Sambasivarao Koritala and H. J. Dutton
J. Amer. Oil Chem. Soc. 42(12): 1150-1152. December 1965

1485 KINETICS OF LINOLENATE HYDROGENATION
H. J. Dutton
J. Amer. Oil Chem. Soc. 40(1): 35-39. January 1963

125-C * CATALYSTS FOR SELECTIVE HYDROGENATION OF SOYBEAN OIL. I. AN EXPERIMENTAL METHOD FOR EVALUATING SELECTIVITY
C. H. Riesz and H. S. Weber
Illinois Institute of Technology Research Institute, Chicago[1]
J. Amer. Oil Chem. Soc. 41(5): 380-383. May 1964

122-C * CATALYSTS FOR SELECTIVE HYDROGENATION OF SOYBEAN OIL. II. COMMERCIAL CATALYSTS
C. H. Riesz and H. S. Weber
Illinois Institute of Technology Research Institute, Chicago[1]
J. Amer. Oil Chem. Soc. 41(6): 400-403. June 1964

127-C * CATALYSTS FOR SELECTIVE HYDROGENATION OF SOYBEAN OIL. III. HYDROGENATION CATALYSTS PREPARED ON MOLECULAR SIEVES AND OTHER SUPPORTS
C. H. Riesz and H. S. Weber
Illinois Institute of Technology Research Institute, Chicago[1]
J. Amer. Oil Chem. Soc. 41(7): 464-468. July 1964

146-C THE CATALYTIC PROPERTIES OF VERMICULITE
M. J. D. Low, P. L. Bartner, and R. Krishnamurthy
Rutgers, The State University, New Brunswick, N.J.[1]
J. Res. Inst. Catal. Hokkaido Univ. 13(1): 66-70. July 1965

1958 SELECTIVE HYDROGENATION OF SOYBEAN OIL WITH SODIUM BOROHYDRIDE-REDUCED CATALYSTS
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S. Koritala and H. J. Dutton
J. Amer. Oil Chem. Soc. 43(9): 556-558. September 1966

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[1] Report of research work done by an outside agency under contract with the U.S. Department of Agriculture and supervised by the Northern Utilization Research and Development Division.

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Sambasivarao Koritala
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2502 SELECTIVE HYDROGENATION OF SOYBEAN OIL: IV. FATTY ACID ISOMERS FORMED WITH COPPER CATALYSTS
S. Koritala and H. J. Dutton
J. Amer. Oil Chem. Soc. 46(5): 245-248. May 1969

109-F * PROTECTION OF UNSATURATION DURING HETEROGENEOUS CATALYTIC HYDROGENATION OF ALIPHATIC EPOXY TO HYDROXY GROUPS
R. Subbarao, G. Venkateswara Rao, and K. T. Achaya
Regional Research Laboratory, Hyderabad, India[2]
Tetrahedron Lett. (4): 379-381. January 1966

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Yoshiyuki Toyama, Yasuo Katsumata, and Yoshinori Kondo
Toyo University, Kawagoe, Saitama-ken, Japan[2]
Res. Rpt. Fac. Eng. Toyo Univ., No. 3, 1-16 [1967]

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D. J. Moore and Karl J. Moulton
J. Amer. Oil Chem. Soc. 45(8): 639. August 1968

2614 PILOT-PLANT SELECTIVE HYDROGENATION OF SOYBEAN OIL: ACTIVATION AND EVALUATION OF COPPER-CONTAINING CATALYSTS
K. J. Moulton, D. J. Moore, and R. E. Beal
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J. Amer. Oil Chem. Soc. 45(10): 708. October 1968

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Ovidiu Popescu, Sambasivarao Koritala, and H. J. Dutton
J. Amer. Oil Chem. Soc. 46(2): 97-99. February 1969

## Homogeneous Catalysis Including Reduction with Hydrazine

1529 HYDRAZINE-REDUCED LINOLENIC ACIDS AS A SOURCE OF $C_9$, $C_{12}$, AND $C_{15}$ DIBASIC ACIDS
H. J. Dutton, C. R. Scholfield, E. P. Jones, E. H. Pryde, and J. C. Cowan
J. Amer. Oil Chem. Soc. 40(5): 175-179. May 1963

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[2] Report of research work supported with funds provided by the U.S. Department of Agriculture under the authority of U.S. Public Law 480, 83d Congress, and sponsored by the Northern Utilization Research and Development Division.

1641 HOMOGENEOUS CATALYTIC HYDROGENATION OF SORBIC ACID WITH PENTACYANOCOBALTATE II
A. F. Mabrouk, H. J. Dutton, and J. C. Cowan
J. Amer. Oil Chem. Soc. 41(2): 153-158. February 1964

1659 HOMOGENEOUS CATALYTIC HYDROGENATION OF UNSATURATED FATS: IRON PENTACARBONYL
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J. Amer. Oil Chem. Soc. 41(3): 186-191. March 1964

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E. N. Frankel, E. P. Jones, and C. A. Glass
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E. N. Frankel, E. A. Emken, and V. L. Davison
J. Org. Chem. 30(8): 2739-2745. August 1965

159-C HYDRIDOCHLOROBIS(TRIPHENYLPHOSPHINE)PLATINUM(II) AND SOME RELATED COMPOUNDS
John C. Bailar, Jr., and Hiroshi Itatani
University of Illinois, Urbana[1]
Inorg. Chem. 4(11): 1618-1620. November 1965

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K. L. Mikolajczak and M. O. Bagby
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1825 HYDROGEN RELEASE DURING HYDRAZINE REDUCTION
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2501 HOMOGENEOUS CATALYTIC HYDROGENATION OF UNSATURATED FATS: GROUP VIB METAL CARBONYL COMPLEXES
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J. Amer. Oil Chem. Soc. 46(5): 256-261. May 1969

168-C CATALYTIC HYDROGENATION OF SOYBEAN OIL METHYL ESTERS AND SOME RELATED COMPOUNDS
John C. Bailar, Jr., and Hiroshi Itatani
University of Illinois, Urbana[1]
J. Amer. Oil Chem. Soc. 43(6): 337-341. June 1966

2179 HOMOGENEOUS HYDROGENATION OF METHYL LINOLENATE CATALYZED BY PLATINUM-TIN COMPLEXES
E. N. Frankel, E. A. Emken, Hiroshi Itatani,[3] and John C. Bailar, Jr.[3]
J. Org. Chem. 32(5): 1447-1452. May 1967

176-C HOMOGENEOUS CATALYSIS IN THE REACTIONS OF OLEFINIC SUBSTANCES. V. HYDROGENATION OF SOYBEAN OIL METHYL ESTER WITH TRIPHENYLPHOSPHINE AND TRIPHENYLARSINE PALLADIUM CATALYSTS
Hiroshi Itatani and John C. Bailar, Jr.
University of Illinois, Urbana[1]
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John C. Bailar, Jr., and Hiroshi Itatani
University of Illinois, Urbana[1]
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183-C HOMOGENEOUS CATALYSIS IN THE REACTIONS OF OLEFINIC SUBSTANCES. VII. HYDROGENATION AND ISOMERIZATION OF METHYL LINOLEATE WITH BIS(TRIPHENYLPHOSPHINE)-NICKEL HALIDES
Hiroshi Itatani and John C. Bailar, Jr.
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J. Amer. Chem. Soc. 89(7): 1600-1602. March 1967

209-C * HOMOGENEOUS CATALYSIS IN THE REACTIONS OF OLEFINIC SUBSTANCES. XI. HOMOGENEOUS CATALYTIC HYDROGENATION OF SHORT-CHAIN OLEFINS WITH DICHLOROBIS(TRIPHENYLPHOSPHINE)PLATINUM(II)-TIN(II) CHLORIDE CATALYST
R. W. Adams, G. E. Batley, and John C. Bailar, Jr.
University of Illinois, Urbana[1]
J. Amer. Chem. Soc. 90(22): 6051-6056. October 1968

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[3] University of Illinois, Urbana.

211-C * [THE ISOMERISM AND HYDROGENATION OF POLYOLEFINIC SUBSTANCES. In Japanese]
J. C. Bailar, Jr., H. Itatani, and H. Tayim
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2351 HOMOGENEOUS HYDROGENATION OF UNSATURATED FATTY ESTERS BY $Fe(CO)_5$ AND DIENE-$Fe(CO)_3$
E. N. Frankel, T. L. Mounts, R. O. Butterfield, and H. J. Dutton
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Michael Cais,[4] E. N. Frankel, and A. Rejoan[4]
Tetrahedron Lett. (16): 1919-1923. February 1968

2400 HYDROGEN FORMATION DURING HYDRAZINE REDUCTION OF OLEIC ACID
E. D. Bitner and H. J. Dutton
J. Amer. Oil Chem. Soc. 45(8): 603-606. August 1968

2531 RELATIVE REDUCTION RATES OF FATTY ACID ISOMERS BY HYDRAZINE
C. R. Scholfield, R. O. Butterfield, T. L. Mounts, and H. J. Dutton
J. Amer. Oil Chem. Soc. 46(6): 323-326. June 1969

2627 HOMOGENEOUS HYDROGENATION OF DIOLEFINS CATALYZED BY TRICARBONYL CHROMIUM COMPLEXES. I. STEREOSELECTIVE 1,4 ADDITION OF HYDROGEN
E. N. Frankel and R. O. Butterfield
J. Org. Chem. 34(12): 3930-3936. December 1969

2628 HOMOGENEOUS HYDROGENATION OF DIOLEFINS CATALYZED BY TRICARBONYL CHROMIUM COMPLEXES. II. DEUTERATION
E. N. Frankel, E. Selke, and C. A. Glass
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[4] Israel Institute of Technology, Haifa.

1333 CITRIC ACID: INACTIVATING AGENT FOR METALS OR ACID SYNERGIST IN EDIBLE FATS?
J. C. Cowan, Patricia M. Cooney, and C. D. Evans
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E. Fedeli, P. Capella, G. Livraghi, G. Acampora, and G. Jacini
Experiment Station for the Fats and Oils Industries, Milan, Italy[2]
Riv. Ital. Sostanze Grasse 40(6): 300-307. June 1963

55-F RICERCHE SULL'AUTOSSIDAZIONE DI SOSTANZE GRASSE POLI-INSATURE. NOTA II. [RESEARCH ON THE AUTOXIDATION OF POLYUNSATURATED FATTY MATERIALS. II.]
E. Fedeli, P. Capella, G. Acampora, and G. Jacini
Experiment Station for the Fats and Oils Industries, Milan, Italy[2]
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54-F RICERCHE SULL'AUTOSSIDAZIONE DI SOSTANZE GRASSE POLI-INSATURE. NOTA IV: PREPARAZIONE DI ALCUNI COMPLESSI BIS-SALICILALDEIDE (β,β DIALCHIL)-PROPILENDIIMMINA E PURIFICAZIONE DEI COMPLESSI PER CROMATOGRAFIA SU STRATO SOTTILE. [RESEARCH ON THE AUTOXIDATION OF POLYUNSATURATED FATTY MATERIALS. IV. PREPARATION OF SOME COMPLEXES OF BIS-SALICILALDEHYDE(β,β DIALKYL)-PROPYLENE-DIIMINE AND PURIFICATION OF THESE COMPLEXES BY THIN-LAYER CHROMATOGRAPHY]
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Chim. Ind. (Milan) 45(12): 1522-1524. December 1963

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A. Vioque, M. A. Albi, and Ma Del Pilar Villagran
Institute of Fats and Their Derivatives, Seville, Spain[2]
J. Amer. Oil Chem. Soc. 41(12): 785-787. December 1964

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A. Vioque, R. Gutierrez, M. A. Albi, and M. Nosti
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Grasas Aceites (Seville, Spain) 16(6): 269-277. November-December 1965

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C. D. Evans, D. G. McConnell, E. N. Frankel, and J. C. Cowan
J. Amer. Oil Chem. Soc. 42(9): 764-770. September 1965

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F. S. Rasero and M. Monteoliva
University of Granada, Granada, Spain[2]
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M. Truyols and J. Thomas
University of Granada, Granada, Spain[2]
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Giovanni Jacini,[5] Enzo Fedeli,[5] and Wilbur C. Schaefer
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Ami Dolev, W. K. Rohwedder, T. L. Mounts, and H. J. Dutton
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[5] Experiment Station for the Fats and Oils Industries, Milan, Italy.

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C. D. Evans, G. R. List, Ami Dolev, D. G. McConnell, and R. L. Hoffmann
Lipids 2(5): 432-434. September 1967

137-F STUDIES ON CAUSE OF COLOR REVERSION OF EDIBLE SOYBEAN OIL AND ITS PREVENTION. PART I. RELATION BETWEEN THE MOISTURE OF SOYBEANS AND THE QUANTITY OF TOCOPHEROL IN THEM
Mamoru Komoda, Noriji Ōnuki, and Ichiro Harada
Sugiyama Chemical Research Institute, Tokyo, Japan[2]
Agr. Biol. Chem. 30(9): 906-912. September 1966

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Sugiyama Chemical Research Institute, Tokyo, Japan[2]
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M. Truyols and J. Thomas
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Ars Pharm. 8(7-10): 380-385. 1967

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J. C. Cowan
*In* Fatty Acids. Part 5, Their Chemistry, Properties, Production and Uses, 2nd ed., rev. and enl., ed. Klare S. Markley, pp. 3685-3713. New York. 1968

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G. R. List, R. L. Hoffmann, W. F. Kwolek,[7] and C. D. Evans
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[6] Research Institute for Food Science, Kyoto University, Kyoto, Japan.

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## Patents

[These patents are assigned to the Secretary of Agriculture. Printed copies of patents may be obtained only by purchase (50 cents each) from the Commissioner of Patents, U.S. Patent Office, Washington, D.C. 20231. Order by number, do not send stamps. Use your zip code.]

### Oxidation, Autoxidation, and Antioxidants

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### Analytical, Preparative, and Structural Studies

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